



U.S. Fish and Wildlife Service

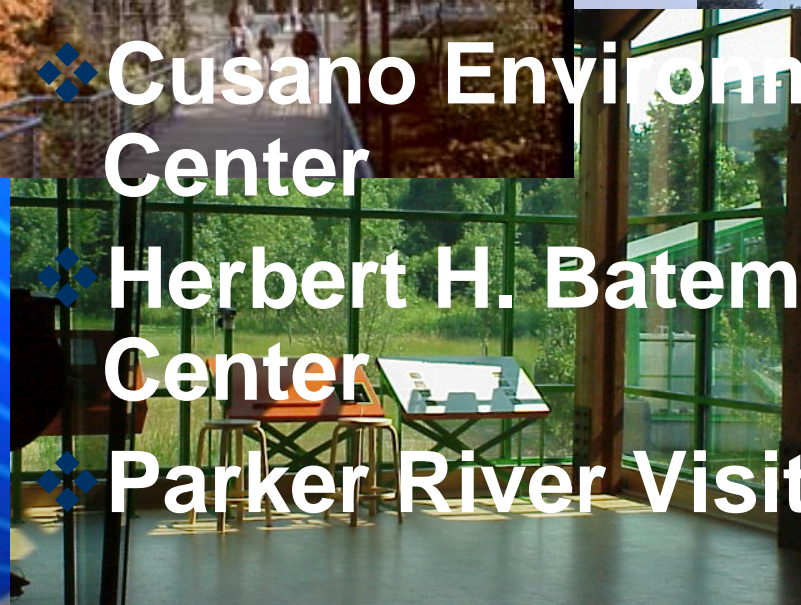
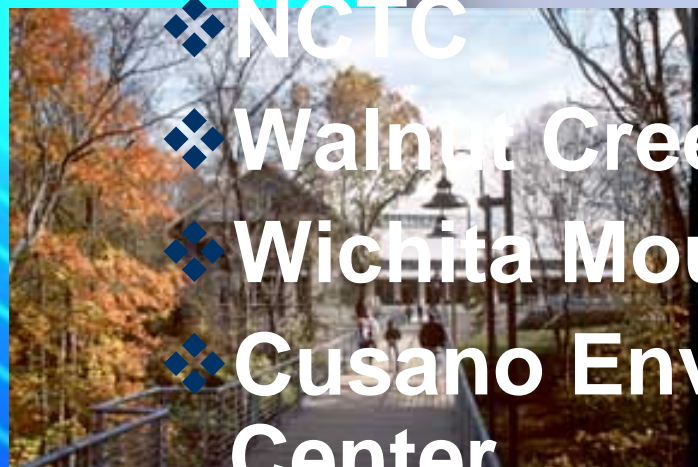
Energy Showcases Do It Right!

**David Guthrie, P.E.
Energy Coordinator**



Energy Showcases

- ❖ NCTC
- ❖ Walnut Creek Prairie Learning Center
- ❖ Wichita Mountains Visitor Center
- ❖ Cusano Environmental Education Center
- ❖ Herbert H. Bateman Education Center
- ❖ Parker River Visitor Center



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Concentrate on Two

- ❖ **Herbert H. Bateman Education Center, VA**
- ❖ **Parker River Visitor Center, MA**

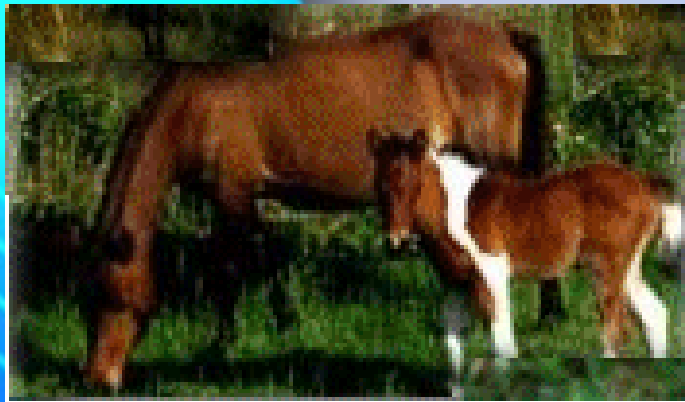


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Chincoteague NWR, VA



**Home of the
endangered
Delmarva fox squirrel,
threatened piping plover,
and the famous ponies**



**Over
1,000,000
visitors**



Adult piping plover (Charadrius melodus)

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Herbert H. Bateman Education Center – LEED Gold



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Sustainable Design

- ❖ Built using a holistic, sustainable approach
- ❖ Protects wildlife and minimizes habitat disturbance by being constructed on an already disturbed site
- ❖ Reduces backlog maintenance \$800,000 by replacing 5 old inadequate buildings



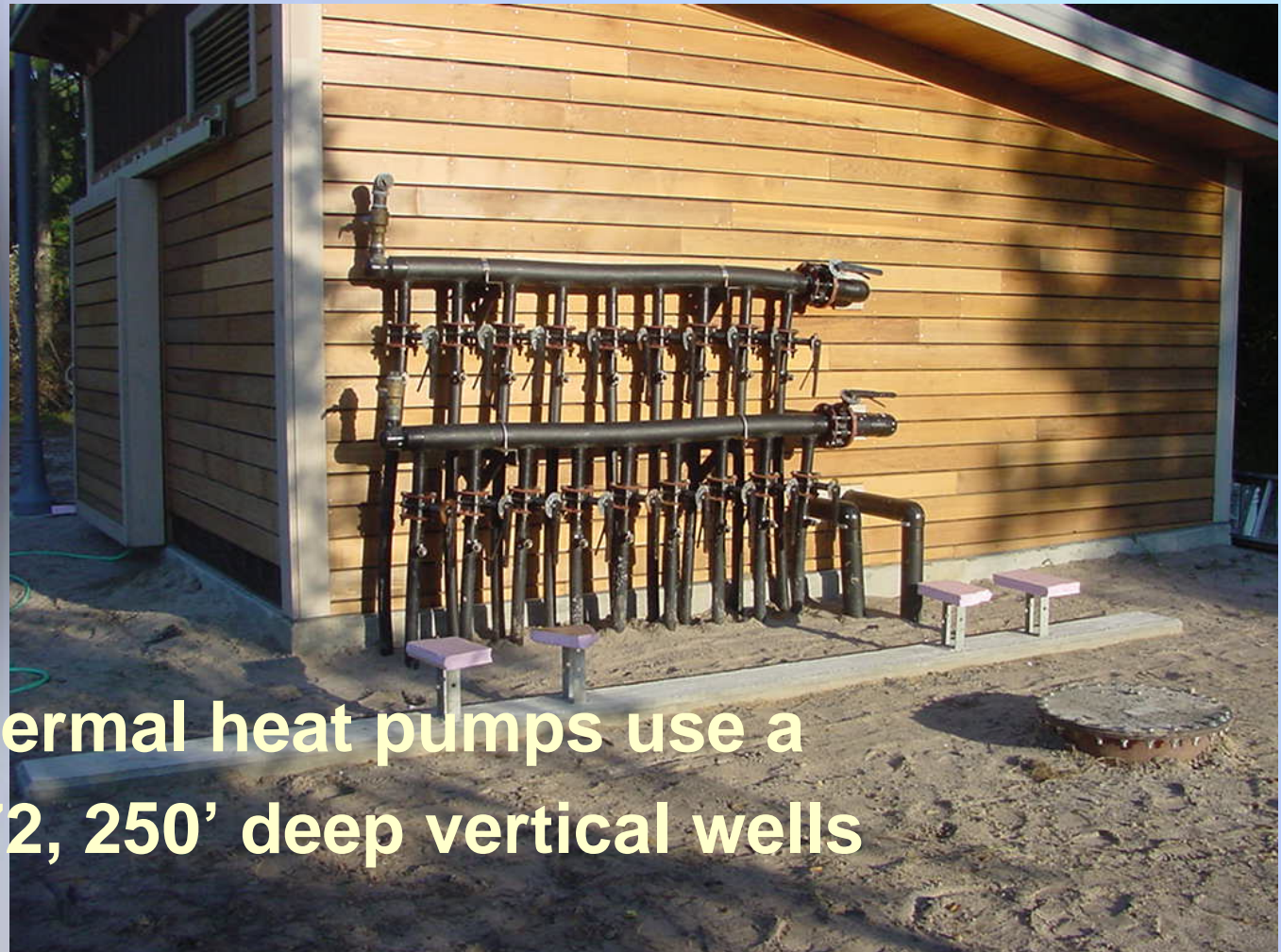
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Geothermal Energy

**23 geothermal heat pumps use a
total of 72, 250' deep vertical wells**



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Energy Efficiency

- ❖ **Energy-efficient and natural lighting**
- ❖ **Low-e windows**
- ❖ **Cross ventilation**
- ❖ **High-efficiency envelope**



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Passive Solar Energy

- ❖ **90% of the Center has daylighting and scenic views.**
- ❖ **Passive solar energy features like sun shading are used throughout**
- ❖ **The Center cuts energy use by 50% compared to a typical facility**



Leadership

The new Herbert H. Bateman Educational and Administrative Center at Chincoteague National Wildlife Refuge was built using a holistic, sustainable approach, with a special focus on protecting wildlife and minimizing disturbance to site surroundings. The Center replaces five old, inadequate buildings, restoring natural habitat while also saving \$800,000 in backlog maintenance. Low-flow showers, faucets, and waterless urinals, along with natural wastewater treatment, save two million gallons of water annually. With geothermal heat pumps, energy-efficient lighting, high-performance windows, natural daylighting, sunshading, and a high-efficiency building envelope, the Center cuts energy use by 50% compared to a typical facility.

Herbert H. Bateman Educational and Administrative Center
Chincoteague, Virginia

 **YOU HAVE the POWER™**

United States Department of the Interior
Federal Energy Management Program

Circle 2001

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Light Tubes



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Active Solar Energy

**15 kW solar
panels rest
on top of the
Auditorium**



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Water Conservation

- ❖ Low-flow showers
- ❖ Low-flow faucets
- ❖ Waterless urinals
- ❖ Created wetlands for wastewater treatment
- ❖ Xeriscaping
- ❖ 2,000,000 gallons saved



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Putting Wetlands to Work



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Green Technologies

- ❖ The site also uses onsite recycling
- ❖ Rapidly renewable materials for construction

**recycled carpet
and bamboo
flooring**



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Exhibits



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Parker River NWR, MA

- ❖ 240,000 visitors
- ❖ American black duck
- ❖ Nesting for the Threatened piping plover & least tern
- ❖ American kestrel
- ❖ Warbler migration in May
- ❖ Tree swallows stage Aug-Sep
- ❖ Heron and other wading birds



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Parker River Visitor Center – LEED Certified

(16,000 ft²)



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Habitat Restoration

- ❖ Returning disturbed land to shallow wetlands, old field, upland woods, and coastal area habitats
- ❖ Planting native species of trees, shrubs, forbs, and grasses
- ❖ Utilizing soil excavated from storm runoff cleansing basins as loam throughout the site



Recycling

- ❖ **Recycled building materials with no or low-emissions**
 - engineered wood
 - plastic lumber
 - linoleum flooring
 - fiberboard, sheetrock
 - exterior decking, tile, deck piers, and carpet with high recycled content
- ❖ **Construction materials were recycled**
- ❖ **Non-hazardous preservative was applied to exterior, pressure-treated wood**



Recycling Examples



**Sustainable
Linoleum Flooring**



Recycled Tiles

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Passive Solar Energy

- ❖ **Building orientation on an SE axis**
- ❖ **Shady overhangs**
- ❖ **Daylighting via clerestory windows**



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Energy Efficiency

- ❖ Super insulation in building envelope
- ❖ Natural ventilation
- ❖ Energy-efficient lighting and ballasts
- ❖ Timers, self-adjusting dimmers
- ❖ 41% savings compared to traditional bldg



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Geothermal Heat Exchange System

**Two
Geothermal
Wells
feeding 9
heat pumps
will save
\$9,000 a
year**

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Water Conservation

- ❖ **Roof runoff discharges onto grassy swales or into underground percolating chambers, recharging local aquifers**
- ❖ **Low-flush toilets**
- ❖ **Low flow faucets and showerheads**





Partnerships

- ❖ **Commonwealth of Massachusetts
(contributed \$1,000,000)**
- ❖ **State Park staff**
- ❖ **The City of Newburyport**
- ❖ **Cambridge Seven Associates**
- ❖ **Massachusetts Audubon Society**
- ❖ **The Society for the Preservation of New
England Antiquities**
- ❖ **Friends of Parker River Refuge**

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Outreach

- ❖ Exhibits explaining the benefits of the facility's sustainable features
- ❖ Special interpretive exhibits that show good stewardship of the land
- ❖ Seminars to explain the Center's green building architecture and energy efficiency

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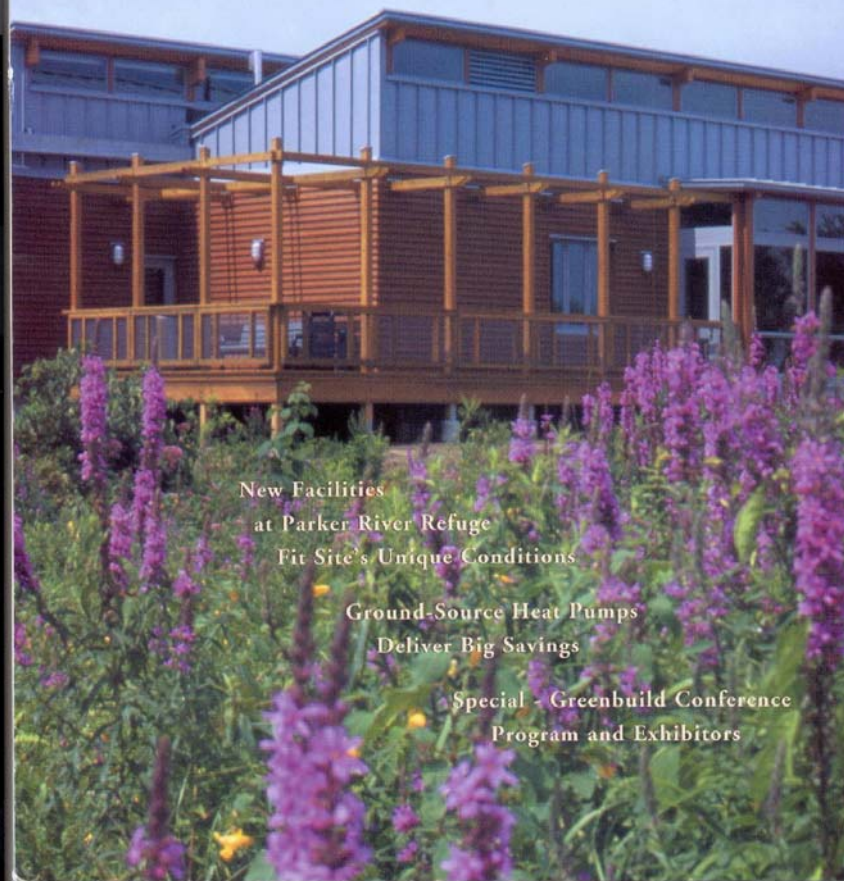
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eco-structure

winter 2003

Improving environmental performance of the building envelope through education & design



New Facilities
at Parker River Refuge
Fit Site's Unique Conditions

Ground-Source Heat Pumps
Deliver Big Savings

Special - Greenbuild Conference
Program and Exhibitors

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